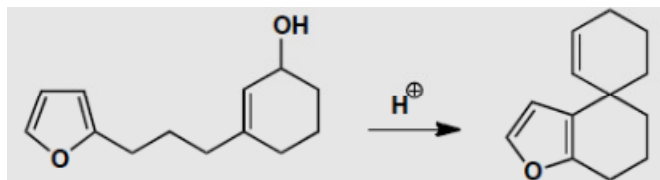
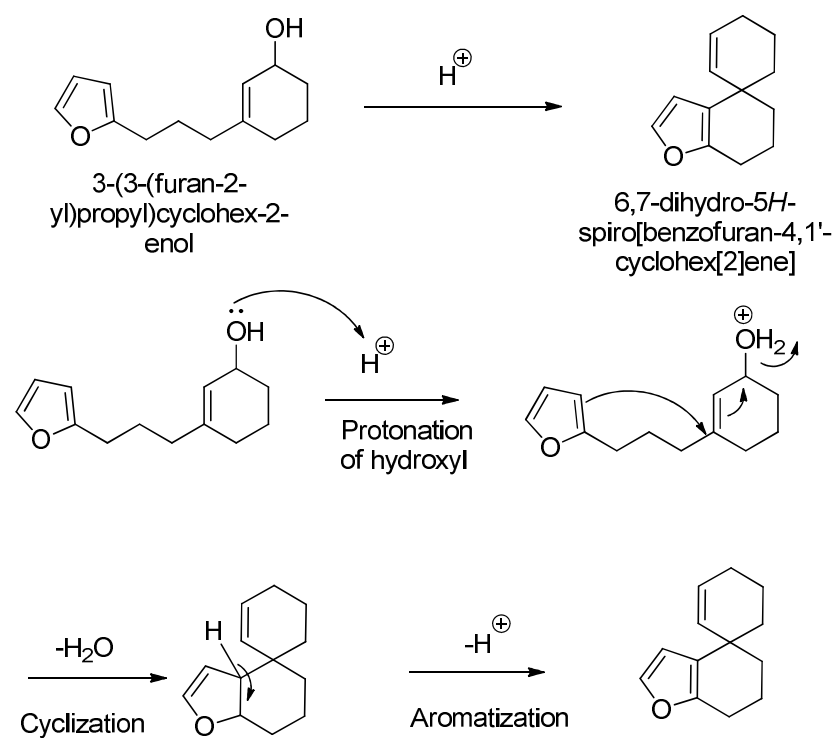


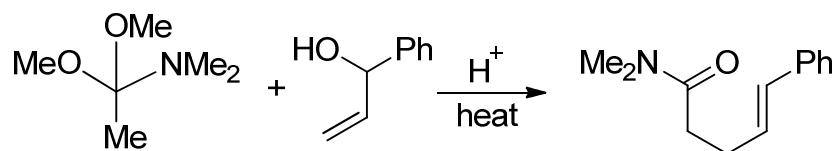
1. Provide a detailed mechanism for the transformation outlined below.



Ans:



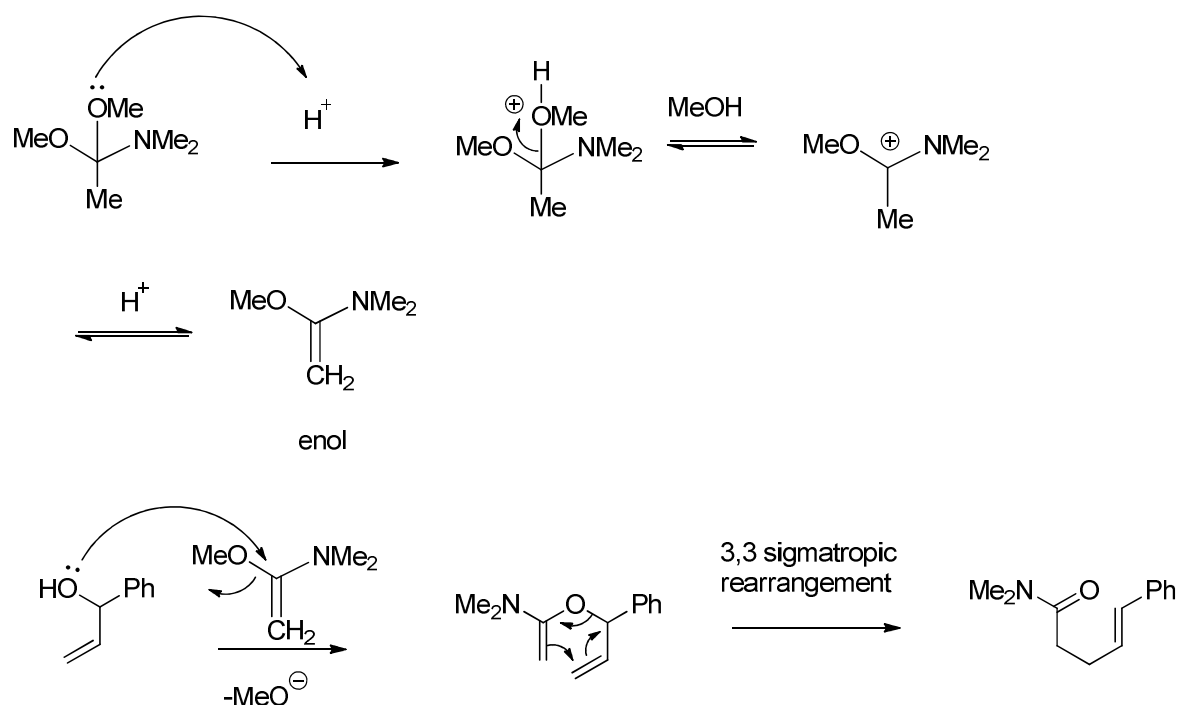
2. Provide a detailed mechanism for each step in the synthesis of the unsaturated amide outlined below.



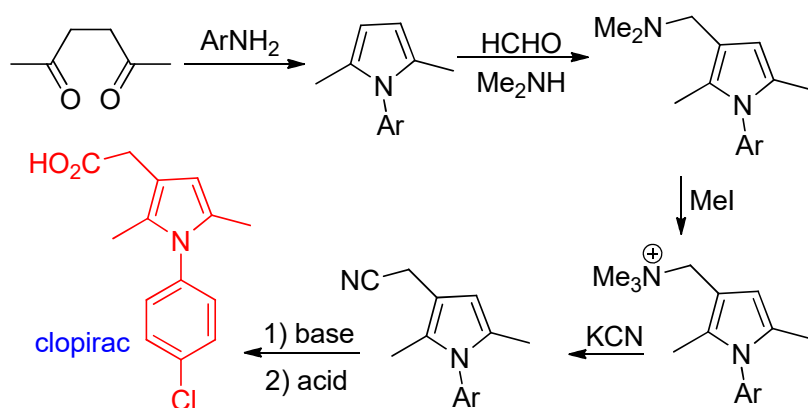
Ans:

Eschenmoser-Claisen Rearrangement

Allylic alcohol react with the enolate generated by dimethylacetale of N,N-dimethylacetamide. The intermediate undergoes 3+3 sigmatropic rearrangement to afford unsaturated amide.

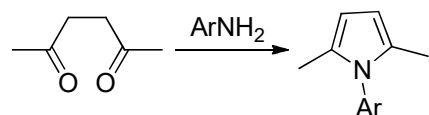


4. Synthesis of the NSAID Clopirac is outlined below. Provide mechanistic details for each step in this synthesis.

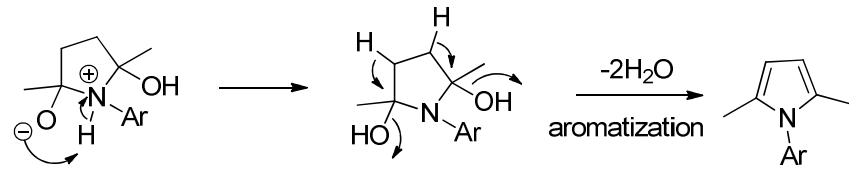
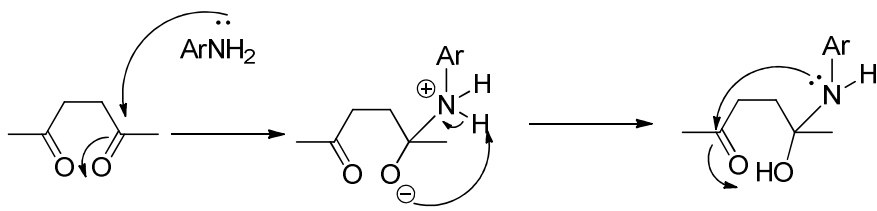


Ans:

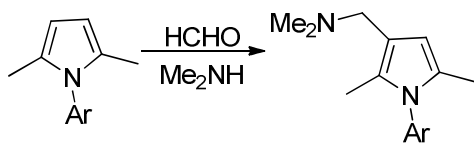
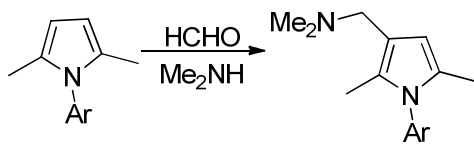
Step 1:



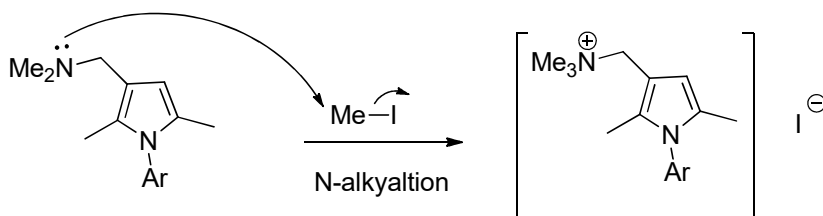
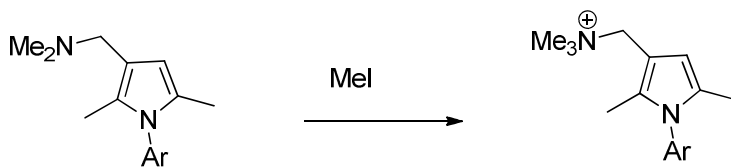
Paal-Knorr pyrrole synthesis



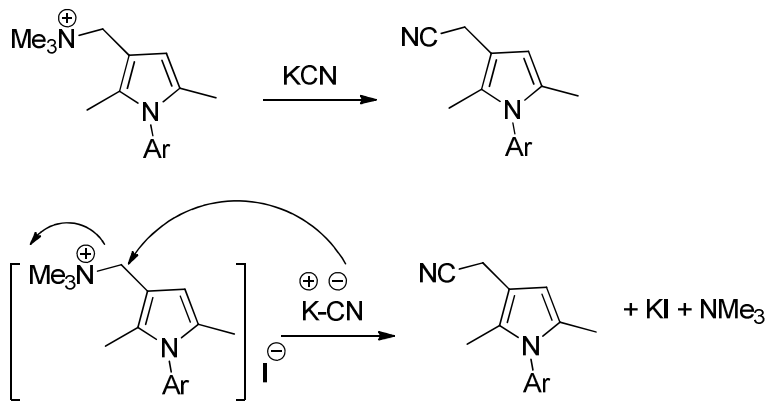
Step 2:



Step 3:



Step 4:



Step 5:

